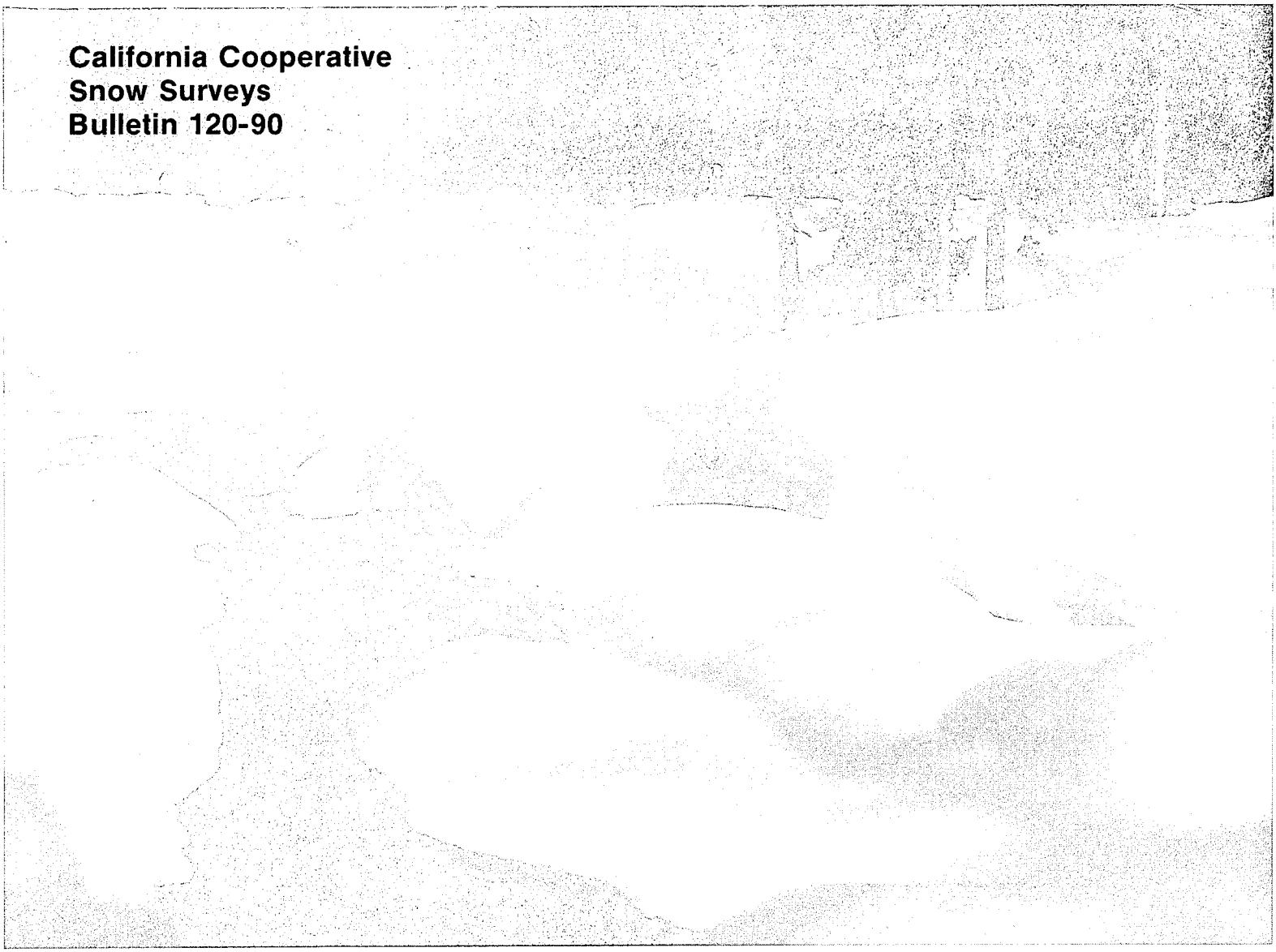
California Cooperative
Snow Surveys
Bulletin 120-90



State of California
The Resources Agency

Department of
Water Resources

Water Conditions in California

Report 3 — April 1, 1990

Gordon K. Van Vleck
Secretary for Resources
The Resources Agency

George Deukmejian
Governor
State of California

David N. Kennedy
Director
Department of Water Resources

STATE OF CALIFORNIA
GEORGE DEUKMEJIAN, Governor

The Resources Agency
GORDON K. VAN VLECK, Secretary for Resources

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COOPERATING AGENCIES

Public Agencies

Buena Vista Water Storage District
Central California Irrigation District
East Bay Municipal Utility District
Friant Water Users Association
Kaweah Delta Water Conservation District
Kern Delta Water District
Kings River Conservation District
Lower Tule River Irrigation District
Merced Irrigation District
Modesto Irrigation District
Nevada Irrigation District
North Kern Water Storage District
Northern California Power Agency
Oakdale Irrigation District
Omochumne-Hartnell Water District
Oroville-Wyandotte Irrigation District
Placer County Water Agency
Sacramento Municipal Utility District
South San Joaquin Irrigation District
Tri-Dam Project
Tulare Lake Basin Water Storage District
Turlock Irrigation District
Yuba County Water Agency

Private Organizations

J.G. Boswell Company
Kaweah River Association
Kings River Water Association
St. Johns River Association
Tule River Association
U.S. Tungsten Corporation

Public Utilities

Pacific Gas and Electric Company
Southern California Edison Company

Municipalities

City of Bakersfield
Water Department
City of Los Angeles
Department of Water and Power
City and County of San Francisco
Hetch Hetchy Water and Power

State Agencies

California Department of Forestry
& Fire Protection
California Department of Water Resources

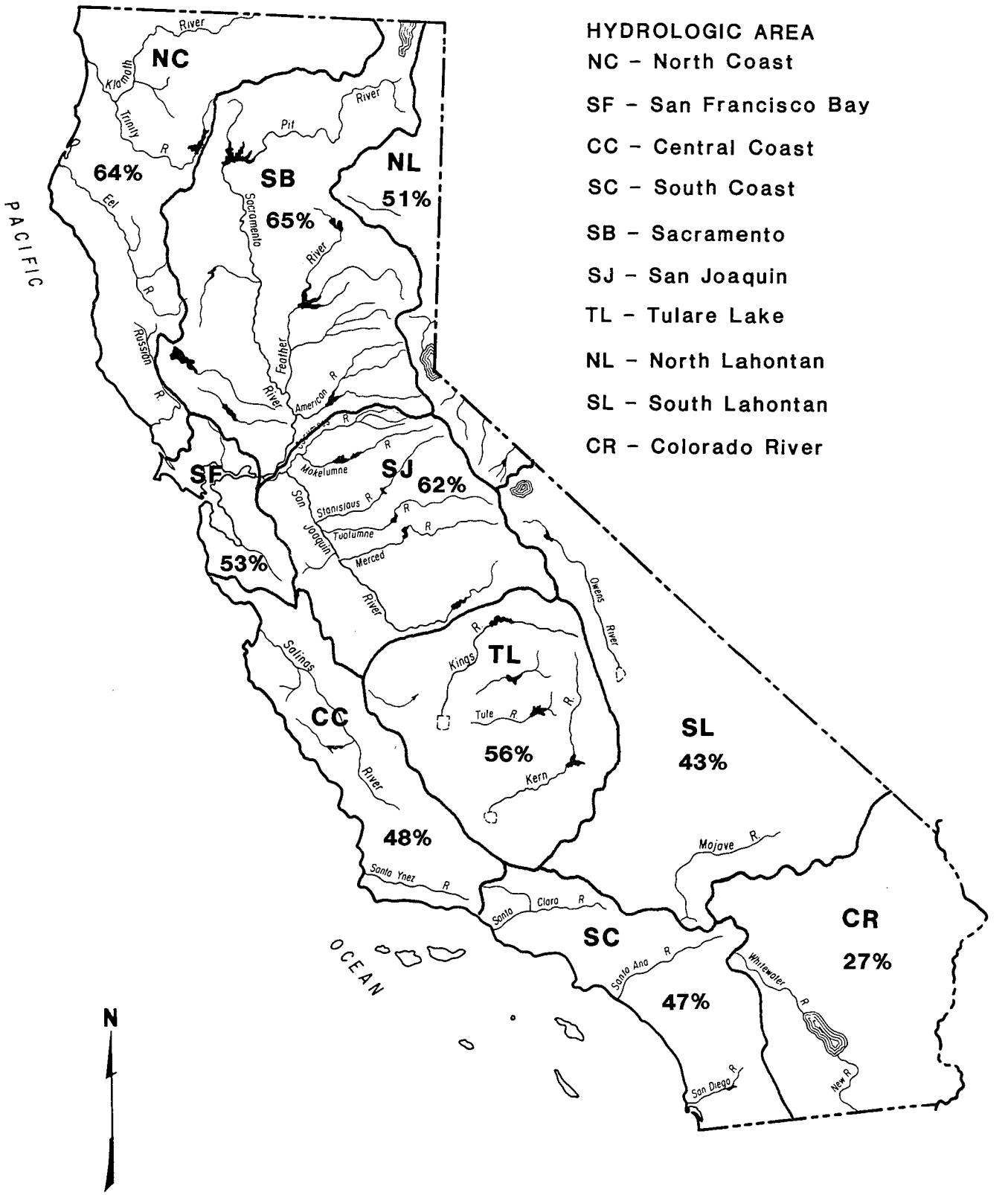
Federal Agencies

U.S. Department of Agriculture
Forest Service(14 National Forests)
Pacific Southwest Forest and Range
Experiment Station
Soil Conservation Service
U.S. Department of Commerce
National Weather Service
U.S. Department of Interior
Bureau of Reclamation
Geological Survey, Water Resources
Division
National Park Service(3 National Parks)
U.S. Department of Army
Corps of Engineers

Other Cooperative Programs

Nevada Cooperative Snow Surveys
Oregon Cooperative Snow Surveys

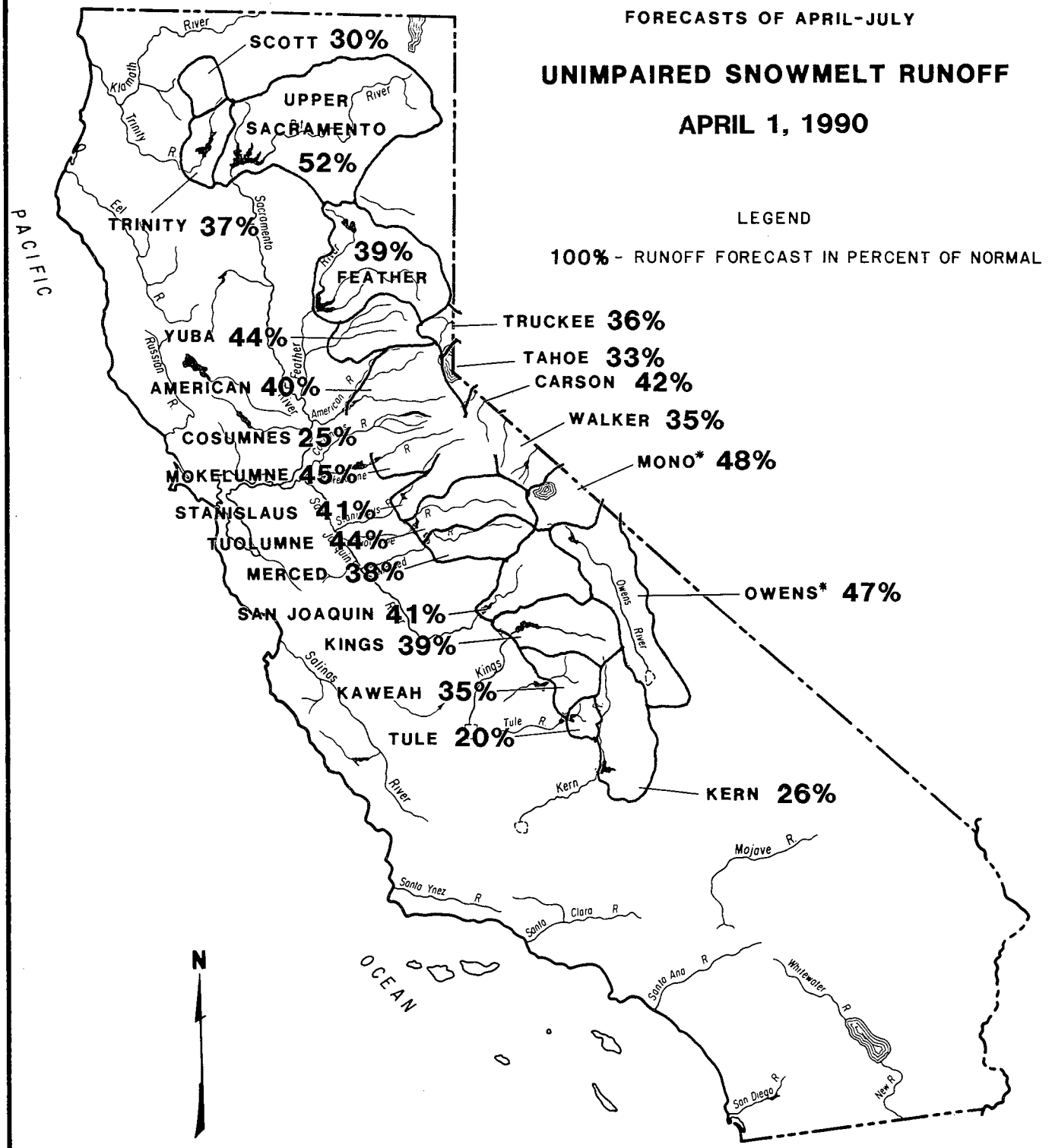
SEASONAL PRECIPITATION IN PERCENT OF AVERAGE TO DATE
OCTOBER 1, 1989 TO MARCH 31, 1990



FORECASTS OF APRIL-JULY

UNIMPAIRED SNOWMELT RUNOFF

APRIL 1, 1990



* FORECAST BY DEPARTMENT OF WATER AND POWER, CITY OF LOS ANGELES FOR THE PERIOD OF APRIL THROUGH SEPTEMBER

SUMMARY OF WATER CONDITIONS

April 1, 1990

To our dismay, precipitation in March turned out to be only about half average. Last year's March wet miracle was not repeated. The rainy season is now drawing to an end and it is virtually certain that California will suffer a fourth consecutive year of drought. The gloomy supply picture prompted many local agencies to plan and implement special conservation measures. Both the Central Valley Project and the State Water Project have announced reduction in water deliveries.

FORECASTS of April through July runoff have been lowered to about three fourths of amounts one month ago. Water year runoff forecasts have also been reduced about 10 percent and are comparable or a little less than in 1987 and 1988. The forecast for the Sacramento River Index, an important indicator of the State's water health, sank deeper into the "critical" category. Water conditions are predicted to be critical in all hydrographic areas of the State this year.

SNOWPACK water content usually increases until about the first of April when melt off begins. This year, however, the snowpack peaked in early March and is now less than half normal. The snowpacks of the San Joaquin and South Lahontan drainages are holding slightly less than half of their average April 1 water content while the packs of the Sacramento Basin, Tulare Lake Basin and the North Coast are holding only about a third of normal.

PRECIPITATION statewide during March was only about half normal and ranged from about 60 percent of average on the North Coast to less than 20 percent in two of the southern regions. Seasonal precipitation, statewide, stands at a little more than half of average. The wettest regions are the North Coast and Sacramento Basins and driest is the Colorado Desert which has had only about a quarter of its usual rainfall.

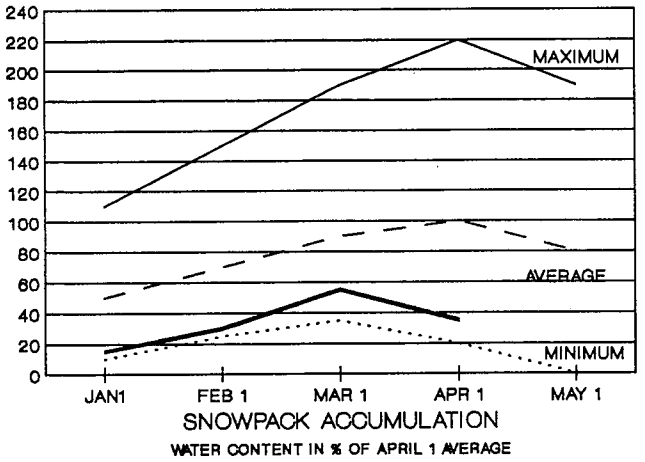
RUNOFF since October 1 is only about 40 percent of average for the State as a whole. Runoff in the coastal regions from San Francisco Bay south are very low for the fourth year in a row. Monthly flows picked up some in the wetter regions during March. This was due to early melting of some of the meager snowpack during the last half of March.

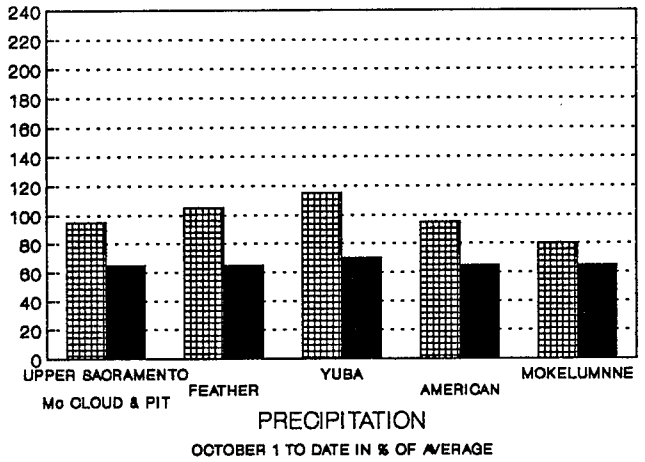
RESERVOIR STORAGE gained near normal amounts during the month and was about three quarters of average overall. This is nearly the same percentage as a month ago, but considerably less than at this time last year. South Coast reservoirs, mostly used for regulation of imports, continue to be near normal. In contrast Central Coast reservoirs showed no gain and are storing only 18 percent of average.

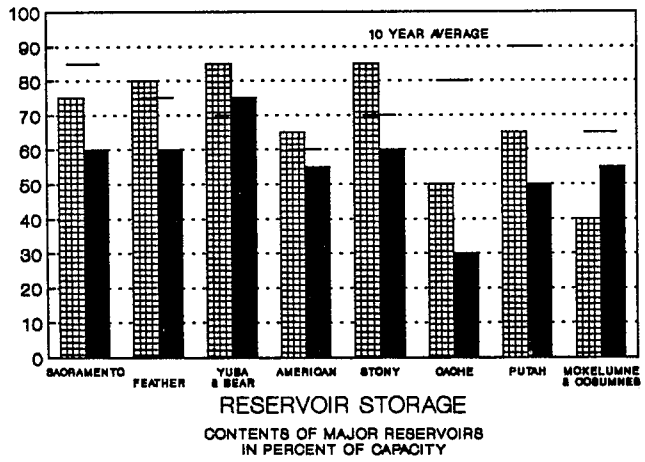
SUMMARY OF WATER CONDITIONS

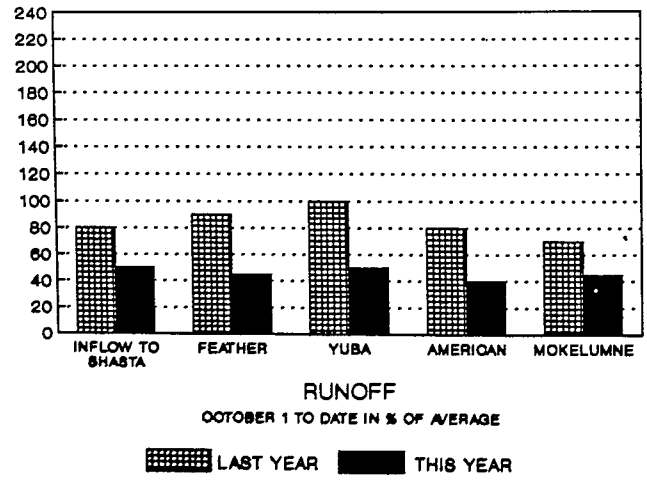
IN PERCENT OF AVERAGE

HYDROGRAPHIC AREA	PRECIPITATION OCTOBER 1 TO DATE	SNOW WATER CONTENT	RESERVOIR STORAGE	RUNOFF OCTOBER 1 TO DATE	RUNOFF APR-JULY FORECAST	WATER YEAR FORECAST
NORTH COAST	65	35	75	40	35	35
SAN FRANCISCO BAY	55	--	70	20	--	--
CENTRAL COAST	50	--	20	10	--	--
SOUTH COAST	45	--	100	20	--	--
SACRAMENTO BASIN	65	35	75	45	45	45
SAN JOAQUIN BASIN	60	45	75	40	40	40
TULARE LAKE BASIN	55	35	40	35	35	35
NORTH LAHONTAN	50	40	30	60	40	45
SOUTH LAHONTAN	45	45	75	60	45	50
COLORADO RIVER	25	--	--	--	--	--
STATEWIDE	60	40	75	40	40	40









SACRAMENTO BASIN

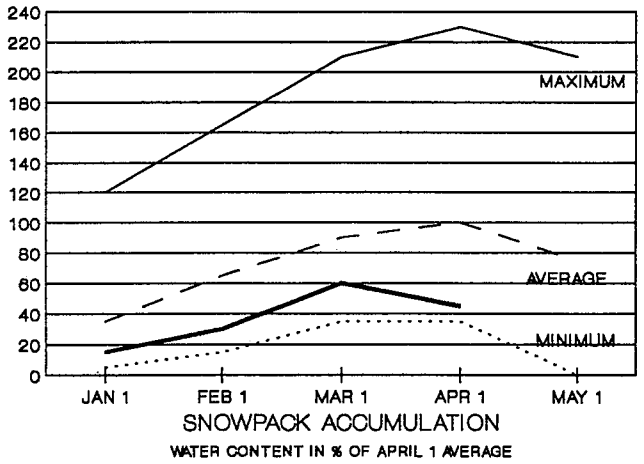
SNOWPACK - First of the month measurements made at 84 snow course indicate a basin wide snow water equivalent of 12.3 inches. This is 35 percent of the average for April 1. Last year at this time, the pack was holding 25.6 inches of water.

PRECIPITATION - Seasonal precipitation (October 1 through the end of last month) on the Sacramento Basin was 65 percent of normal. Precipitation last month was about 53 percent of the monthly average. Seasonal precipitation at this time last year stood at 100 percent of normal.

RESERVOIR STORAGE - First of the month storage in 43 reservoirs was 9.6 million acre-feet which is 77 percent of average. About 60 percent of available capacity was being used. Storage in these reservoirs was about 95 percent of average at this time last year.

RUNOFF - Seasonal runoff from streams draining into the basin totaled 4.9 million acre-feet which is 45 percent of average for this period. Last year runoff for the same period was 80 percent of average.

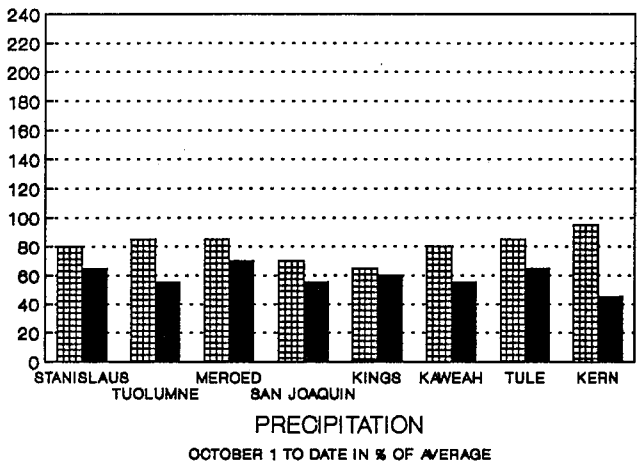
The Sacramento River Index for the year is forecast at 8.6 million acre-feet assuming median meteorological conditions for the remainder of the year. This classifies the year as "critical" in the Sacramento-San Joaquin Delta according to the State Water Resources Control Board's Decision 1485.



SAN JOAQUIN AND TULARE LAKE BASINS

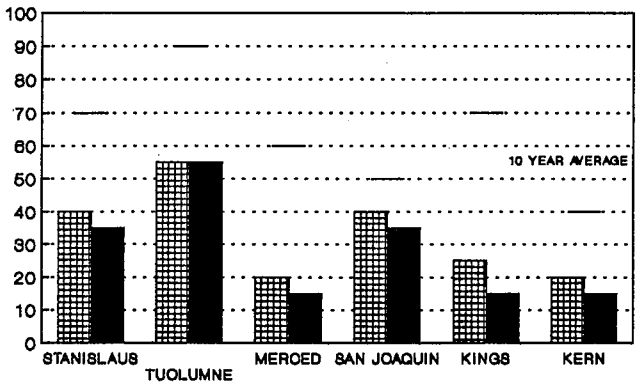
SNOWPACK - First of the month measurements made at 74 San Joaquin Basin snow courses indicate a basin wide snow water equivalent of 15.8 inches which is 45 percent of the seasonal (April 1) average. Last year at this time, the pack was holding 25.5 inches of water.

At the same time, 44 Tulare Lake Basin snow courses indicated a basin wide snow water equivalent of 9.0 inches which is 36 percent of the seasonal average. Last year at this time, the Basin was holding 15.1 inches of water.



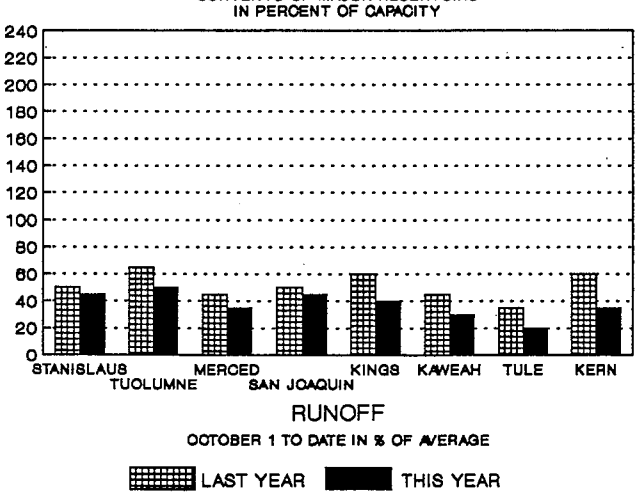
PRECIPITATION - Seasonal precipitation (October 1 through the end of last month) on the San Joaquin Basin was 62 percent of normal. Precipitation last month was 49 percent of the monthly average. Seasonal precipitation at this time last year stood at 80 percent of normal.

Seasonal precipitation on the Tulare Lake Basin was 56 percent of normal. Precipitation last month was 54 percent of the monthly average. Seasonal precipitation at this time last year stood at 80 percent of normal.



RESERVOIR STORAGE - First of the month storage in 33 San Joaquin Basin reservoirs was 5.6 million acre-feet which is 76 percent of average. About 49 percent of available capacity was being used. Storage in these reservoirs at this time last year was 75 percent of average.

First of the month storage in 6 Tulare Lake Basin reservoirs was 342 thousand acre-feet which is 40 percent of average. About 17 percent of available capacity was being used. Storage in these reservoirs at this time last year was 55 percent of average.



RUNOFF - Seasonal runoff of streams draining into the San Joaquin Basin totaled 1.0 million acre-feet which is 41 percent of average for this period. Last year, runoff for this same period was 55 percent of average.

Seasonal runoff of streams draining into the Tulare Lake Basin totaled 310 thousand acre-feet which is 36 percent of average for this period. Last year, runoff for this same period was 55 percent of average.

DEPARTMENT OF WATER RESOURCES - CALIFORNIA DATA EXCHANGE CENTER
TELEMETERED SNOW WATER EQUIVALENTS - APRIL 1, 1990

BASIN NAME / STATION NAME	AGENCY	ELEV FEET	APR 1 AVG	TODAY	INCHES OF WATER EQUIVALENT PERCENT OF APR 1	24 HRS AGO	1 WEEK AGO
TRINITY RIVER							
PETERSON FLAT	USBR	6700	33.0	10.4	32%	10.8	11.6
RED ROCK MOUNTAIN	USBR	6700	44.0	13.8	31%	14.0	----
BONANZA KING	USBR	6450	40.5	7.5	19%	8.5	12.8
SHIMMY LAKE	USBR	6200	49.9	11.6	23%	12.2	----
MIDDLE BOULDER #3	USBR	6200	27.1	6.0	22%	7.0	----
HIGHLAND LAKES	USBR	6030	34.0	2.5	7%	3.1	----
SCOTTS MOUNTAIN	USBR	5900	27.0	1.9	7%	2.6	----
MUMBO BASIN	USBR	5700	25.8	1.8	7%	2.8	----
BIG FLAT	USBR	5100	20.0	8.6	43%	9.0	10.6
SACRAMENTO RIVER							
CEDAR PASS	SCS	7100	18.1	10.0	55%	10.3	10.5
BLACKS MOUNTAIN	DWR	7286	8.6	3.4	39%	3.8	----
SAND FLAT	USBR	6750	42.4	14.3	34%	14.6	----
MEDICINE LAKE	USBR	6700	32.7	16.1	49%	16.3	----
ADIN MOUNTAIN	SCS	6350	13.6	7.6	56%	8.0	----
SNOW MOUNTAIN	USBR	5950	27.0	6.7	25%	7.3	9.5
SLATE CREEK	USBR	5600	30.0	7.7	26%	9.1	----
STOUTS MEADOW	USBR	5400	42.5	5.9	14%	6.2	9.1
FEATHER RIVER							
KETTLEROCK	DWR	7300	25.5	11.0	43%	11.6	14.2
GRIZZLY	DWR	6900	29.7	12.0	40%	12.2	13.7
PILOT PEAK	DWR	6800	52.6	8.8	17%	9.7	12.7
GOLD LAKE	DWR	6750	36.5	25.0	68%	25.1	25.6
HUMBUG	DWR	6500	28.0	16.2	58%	16.8	18.7
RATTLESNAKE	DWR	6100	14.0	3.7	27%	4.2	7.4
BUCKS LAKE	DWR	5750	44.7	25.6	57%	26.3	30.5
FOUR TREES	DWR	5150	20.0	10.9	55%	11.2	15.8
YUBA & AMERICAN RIV							
LAKE LOIS	DWR	8800	----	18.1	----	18.7	22.0
SCHNEIDERS	SMUD	8750	34.5	----	----	----	26.9
CAPLES LAKE COURSE	USBR	7800	30.9	15.7	51%	16.0	----
ALPHA	SMUD	7600	35.9	----	----	----	20.4
FORNI RIDGE	USBR	7600	37.0	12.8	35%	13.0	14.8
SILVER LAKE	USBR	7100	22.7	12.1	53%	12.4	14.6
CENT SIERRA SNOW LAB	USFS	6950	33.6	13.6	40%	14.4	----
HUYSINK	USBR	6600	42.6	82.0	192%	18.9	22.0
VAN VLECK	SMUD	6700	35.9	----	----	----	21.7
ROBBS SADDLE	SMUD	5900	21.4	----	----	----	12.3
GREEK STORE	USBR	5600	21.0	10.4	50%	11.2	15.0
BLUE CANYON	USBR	5280	9.0	3.6	40%	3.6	7.3
ROBBS POWERHOUSE	SMUD	5150	5.2	----	----	----	----
MOKEL. & STANIS. RIV							
DEADMAN CREEK	USBR	9250	37.2	16.0	43%	16.2	----
HIGHLAND MEADOW	USBR	8800	47.9	28.3	59%	29.0	----
GIANELLI MEADOW	USBR	8350	55.5	22.8	41%	23.0	24.4
LOWER RELIEF VALLEY	DWR	8100	41.2	19.4	47%	20.4	----
BLUE LAKES	SCS	8000	33.1	----	----	17.1	17.2
MUD LAKE	SMUD	7900	44.9	----	----	----	30.9
STANISLAUS MEADOW	USBR	7750	47.5	21.7	46%	22.1	----
BLOODS CREEK	USBR	7200	35.5	17.9	50%	18.7	19.5
BLACK SPRINGS	USBR	6500	32.0	16.3	51%	16.5	19.5
TUOLUMNE & MERCED R.							
DANA MEADOWS	DWR	9800	27.7	15.4	56%	15.2	----
SLIDE CANYON	DWR	9200	----	23.2	----	23.2	----
SNOW FLAT	DWR	8700	44.1	21.6	49%	20.9	----
TUOLUMNE MEADOWS	DWR	8600	22.6	8.4	37%	9.0	----
HORSE MEADOW	DWR	8400	48.6	28.0	58%	28.6	----
OSTRANDER LAKE	DWR	8200	34.8	18.3	53%	18.3	----
PARADISE	DWR	7650	----	19.8	----	21.5	----
GIN FLAT	DWR	7050	34.2	14.4	42%	14.8	----
LOWER KIBBIE	DWR	6600	27.4	7.2	26%	7.9	----
SAN JOAQUIN RIVER							
VOLCANIC KNOB	USBR	10100	30.1	13.7	46%	13.7	----
AGNEW PASS	USBR	9450	32.3	20.3	63%	20.3	----
KAISER POINT	USBR	9300	37.8	11.8	31%	12.4	----
GREEN MOUNTAIN	USBR	7900	30.8	10.4	34%	10.8	----
TAMARACK SUMMIT	USBR	7600	30.5	14.8	49%	15.5	----

DEPARTMENT OF WATER RESOURCES - CALIFORNIA DATA EXCHANGE CENTER
TELEMETERED SNOW WATER EQUIVALENTS - APRIL 1, 1990

BASIN NAME / STATION NAME	AGENCY	ELEV FEET	APR 1 AVG	TODAY	INCHES OF WATER EQUIVALENT PERCENT OF APR 1	24 HRS AGO	1 WEEK AGO
CHILKOOT MEADOW	USBR	7150	38.0	18.9	50%	19.7	----
HUNTINGTON LAKE	USBR	7000	20.1	12.2	61%	13.0	----
GRAVEYARD MEADOW	USBR	6900	18.8	1.8	10%	2.5	5.7
POISON RIDGE	USBR	6900	28.9	12.6	44%	13.6	----
KINGS RIVER							
BISHOP PASS	DWR	11200	----	16.3	----	16.3	----
CHARLOTTE LAKE	DWR	10400	----	12.6	----	12.7	----
STATE LAKES	USCE	10300	29.0	13.2	46%	12.7	13.7
MITCHELL MEADOW	USCE	10375	32.9	17.9	54%	17.9	17.3
BLACKCAP BASIN	USBR	10300	34.3	15.7	46%	15.7	----
UPPER BURNT CORRAL	DWR	9700	34.6	19.6	57%	19.0	----
WEST WOODCHUCK MDW	USCE	9100	32.8	13.4	41%	13.4	14.7
BIG MEADOWS	DWR	7600	25.9	13.4	52%	14.2	----
KAWEAH & TULE RIVERS							
QUAKING ASPEN	DWR	7200	21.0	12.7	61%	13.3	----
GIANT FOREST	USCE	6412	10.0	.0	0%	.0	----
KERN RIVER							
UPPER TYNDALL CREEK	USCE	11450	27.7	13.9	50%	13.6	----
CRABTREE	DWR	10700	19.8	7.2	36%	7.1	----
CHAGOOPA PLATEAU	DWR	10300	21.8	5.0	23%	5.0	----
PASCOES	USCE	9150	24.9	12.6	50%	12.7	----
TUNNEL	DWR	8950	15.6	.0	0%	.0	----
WET MEADOW	USCE	8900	30.3	7.8	26%	8.5	----
CASA VIEJA MDW	DWR	8400	20.9	11.1	53%	11.1	----
BEACH MEADOW	DWR	7630	11.0	.0	0%	.0	----
SURPRISE VALLEY AREA							
DISMAL SWAMP	SCS	7050	29.2	15.5	53%	16.2	17.7
TRUCKEE RIVER							
MOUNT ROSE	SCS	9000	35.9	----	----	----	----
MOUNT ROSE SKI AREA	SCS	8850	38.5	----	----	21.5	22.4
INDEPENDENCE LAKE	SCS	8450	41.4	----	----	23.2	----
BIG MEADOWS	SCS	8700	25.7	----	----	11.7	12.5
INDEPENDENCE CAMP	SCS	6500	21.8	----	----	9.1	11.6
INDEPENDENCE CREEK	SCS	6500	12.7	8.8	69%	9.1	10.0
LAKE TAHOE BASIN							
HEAVENLY VALLEY	SCS	8800	28.1	11.0	39%	11.5	12.2
HAGANS MEADOW	SCS	8000	16.5	----	----	3.1	6.0
MARLETTE LAKE	SCS	8000	21.1	11.2	53%	11.6	12.6
ECHO PEAK	SCS	7800	39.5	----	----	17.3	20.5
RUBICON NO. 2	SCS	7500	29.1	13.6	47%	13.9	15.4
WARD CREEK NO. 3	SCS	6750	39.4	18.8	48%	19.1	21.3
FALLEN LEAF LAKE	SCS	6300	7.0	----	----	----	.0
CARSON RIVER							
EBBETTS PASS	SCS	8700	38.8	16.5	43%	16.6	17.7
WET MEADOWS	SCS	8050	38.8	21.7	56%	21.9	----
POISON FLAT	SCS	6900	16.2	----	----	----	----
WALKER RIVER							
VIRGINIA LAKES RIDGE	SCS	9200	20.3	8.3	41%	8.1	8.0
LOBDELL LAKE	SCS	9200	17.3	7.9	46%	7.6	8.0
SONORA PASS BRIDGE	SCS	8750	26.0	----	----	17.9	17.7
LEAVITT MEADOWS	SCS	7200	8.0	.0	0%	----	2.9
OWENS RIVER/MONO LK.							
GEM PASS	LADWP	10750	31.7	20.9	66%	20.5	20.0
SAWMILL MEADOW	DWR	10300	19.4	11.0	57%	11.6	----
COTTONWOOD LAKES	LADWP	10200	11.6	7.3	63%	7.3	7.2
BIG PINE #3	LADWP	9800	17.9	8.5	48%	8.5	----
SOUTH LAKE	LADWP	9600	16.0	9.1	57%	9.1	9.8
MAMMOTH PASS-6 TANKS	DWR	9500	42.4	25.0	59%	25.0	----

NORMAL SNOWPACK ACCUMULATION EXPRESSED AS A PERCENT OF APRIL 1ST AVERAGE

AREA	JANUARY	FEBRUARY	MARCH	APRIL	MAY
CENTRAL VALLEY NORTH	45	70	90	100	75
CENTRAL VALLEY SOUTH	45	65	85	100	80
NORTH COAST	40	60	85	100	80
LAHONTAN	50	70	90	100	70

FORECASTS OF APRIL-JULY UNIMPAIRED RUNOFF FOR CENTRAL VALLEY STREAMS APRIL 1, 1990

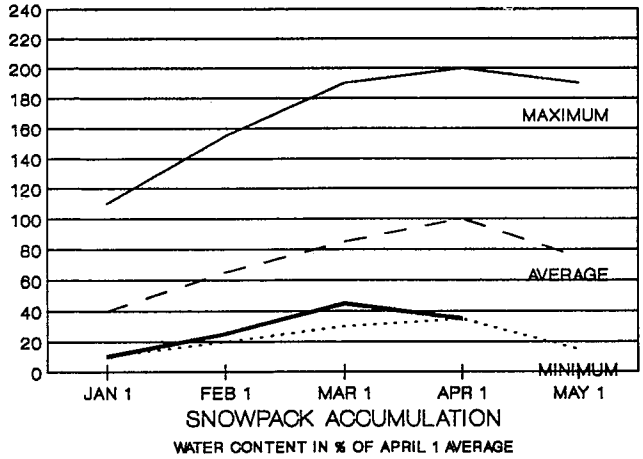
DRAINAGE BASIN AND WATERSHED	April through July Unimpaired Runoff in 1,000 Acre-Feet					
	HISTORICAL			FORECASTS		
	50 Year Average	Maximum of Record	Minimum of Record	April-July Forecast	Percent of Average	80% Prob. Range
SACRAMENTO RIVER BASIN						
Upper Sacramento River						
Sacramento River at Shasta Lake (2)	304	702	39	120	39	
McCloud River at Shasta Lake(2)	430	850	185	230	53	
Pit River at Shasta Lake(2)	1,075	1,796	480	670	62	
Total inflow to Shasta Lake(1)	1,880	3,189	726	980	52	770-1650
Sacramento River above Bend Bridge, near Red Bluff	2,569	4,674	943	1,250	49	1,030-2,200
Feather River						
Feather River at Lake Almanor near Pratville (2)	345	675	120	180	52	
North Fork at Pulga (2)	1,080	2,416	243	450	42	
Middle Fork near Clio (3)	86	518	4	15	17	
South Fork at Ponderosa Dam (2)	116	267	13	50	43	
Total inflow to Oroville Reservoir	1,971	4,676	392	770	39	530-1,450
Yuba River						
North Yuba below Goodyears Bar (2)	298	647	51	140	47	
Inflow to Jackson Mdws and Bowman Reservoirs (2)	115	236	25	55	48	
South Yuba at Langs Crossing (2)	232	481	57	130	56	
Yuba River at Smartville	1,107	2,424	200	490	44	330-870
American River						
North Fork at North Fork Dam (2)	274	716	43	110	40	
Middle Fork near Auburn (2)	548	1,406	100	230	42	
Silver Creek below Camino Diversion Dam (2)	178	386	37	80	45	
Total inflow to Folsom Reservoir	1,366	3,074	229	550	40	400-1,050
Sacramento River at Sacramento						
SAN JOAQUIN RIVER BASIN						
Cosumnes River at Michigan Bar	140	363	8	35	25	15-90
Mokelumne River						
North Fork near West Point (4)	437	829	104	210	48	
Total inflow to Pardee Reservoir	490	1,065	102	220	45	160-350
Stanislaus River						
North Fork inflow to McKay's Point Dam	224	503	34	90	40	
Middle Fork below Beardsley Dam (2)	352	702	64	160	45	
Total inflow to Melones Reservoir	753	1,710	116	310	41	220-510
Tuolumne River						
Cherry Creek and Eleanor Creek near Hetch Hetchy (2)	322	727	97	150	47	
Tuolumne River near Hetch Hetchy (2)	618	1,392	153	300	49	
Total inflow to Don Pedro Reservoir	1,254	2,682	301	550	44	420-830
Merced River						
Merced River at Pohono Bridge (2)	371	888	80	160	43	
Total inflow to Exchequer Reservoir	654	1,587	123	250	38	180-400
San Joaquin River						
San Joaquin River at Mammoth Pool (2)	1,014	2,279	235	440	43	
Big Creek below Huntington Lake (2)	95	264	11	40	42	
South Fork near Florence Lake (2)	202	511	58	100	50	
Total inflow to Millerton Lake	1,296	3,355	262	530	41	350-770
San Joaquin River near Vernalis						
TULARE LAKE BASIN						
Kings River						
North Fork Kings River near Cliff Camp (2)	243	565	50	100	41	
Total inflow to Pine Flat Reservoir	1,266	3,114	273	500	39	350-740
Kaweah River at Terminus Reservoir	303	814	61	105	35	70-170
Tule River at Success Reservoir	70	256	2	14	20	6-28
Kern River						
Kern River near Kernville (2)	389	1,203	83	120	31	
Total inflow to Isabella Reservoir	492	1,657	84	130	26	90-220

(1) All 50-year averages are based on data for water years 1936-1985 except:
(2) 45-year average based on years 1936-80. (4) 36-year average based on years 1936-71.
(3) 44-year average based on years 1936-79. (5) See inside back cover for definition of unimpaired runoff and 80 percent probability ranges.

FORECASTS OF WATER YEAR UNIMPAIRED RUNOFF FOR CENTRAL VALLEY STREAMS APRIL 1, 1990

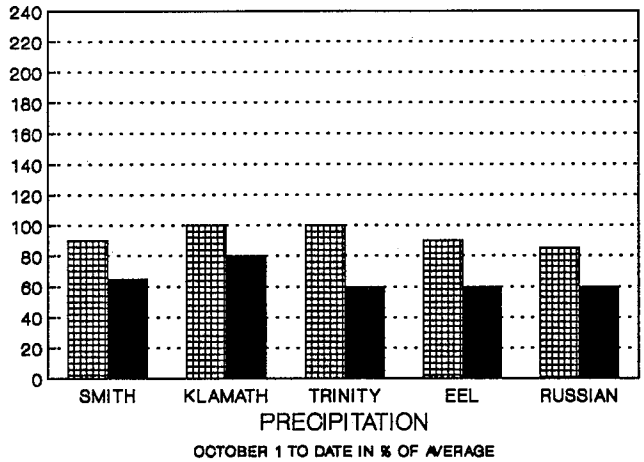
Water Year October through September Unimpaired Runoff in 1,000's Acre-Feet												
HISTORICAL			*	*	* DISTRIBUTION						FORECASTS	
50 Year Average	Maximum of Record	Minimum of Record	October through January	February	March	April	May	June	July	August and September	Water Year Forecast	Percent of Average
859	1,964	165										
1,286	2,353	577										
3,169	5,150	1,484										
6,090	10,796	2,479	1,180	280	470	360	260	190	170	340	3,250 (3,000-4,100)	53
8,856	17,180	3,294	1,610	370	620	440	340	250	220	400	4,250 (3,950-5,450)	48
786	1,269	36										
2,446	4,400	66										
219	637	24										
292	562	32										
4,754	9,492	994	600	180	390	330	220	130	90	120	2,060 (1,800-2,800)	43
565	1,056	102										
174	292	30										
357	565	98										
2,460	4,926	369	290	100	230	220	190	60	20	20	1,130 (950-1,550)	46
612	1,234	66										
1,066	2,575	144										
314	705	59										
2,837	6,381	349	210	100	240	250	230	60	10	10	1,110 (950-1,620)	39
												45
407	1,253	20	20	15	35	20	10	4	1	0	105 (85-160)	26
626	1,009	197										
776	1,800	129	55	20	60	80	110	25	5	0	350 (290-490)	45
483	929	88										
1,198	2,952	155	80	25	80	120	130	50	10	5	500 (400-710)	42
461	1,147	123										
775	1,661	258										
1,951	4,430	383	130	50	145	170	250	115	15	5	880 (740-1,170)	45
460	1,020	92										
1,023	2,859	150	50	25	55	90	110	40	10	5	385 (300-540)	38
1,337	2,964	308										
112	298	14										
248	653	71										
1,861	4,642	362	90	35	85	140	220	130	40	20	760 (570-1,020)	41
												42
282	607	58										
1,745	4,294	383	70	30	70	130	220	120	30	20	690 (530-940)	40
468	1,402	92	18	7	20	35	45	20	5	5	155 (115-230)	33
159	615	16	5	4	8	8	5	1	0	0	32 (24-45)	20
575	1,577	163										
749	2,309	175	43	12	20	35	50	35	10	15	220 (175-320)	29

* Unimpaired runoff to date Estimated Monthly distributions of runoff forecasts are estimated based on comparisons with previous water years

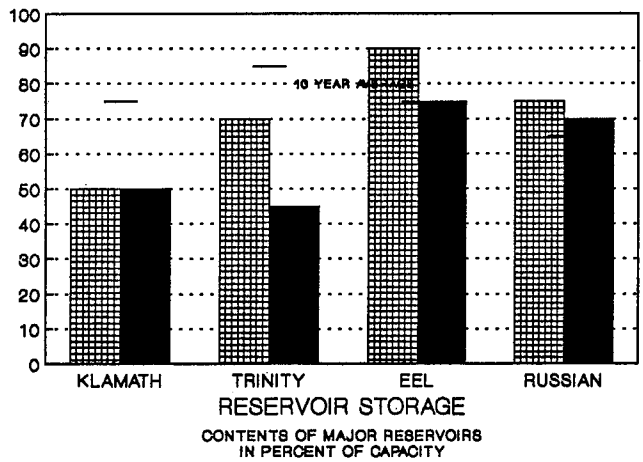


NORTH COAST AREA

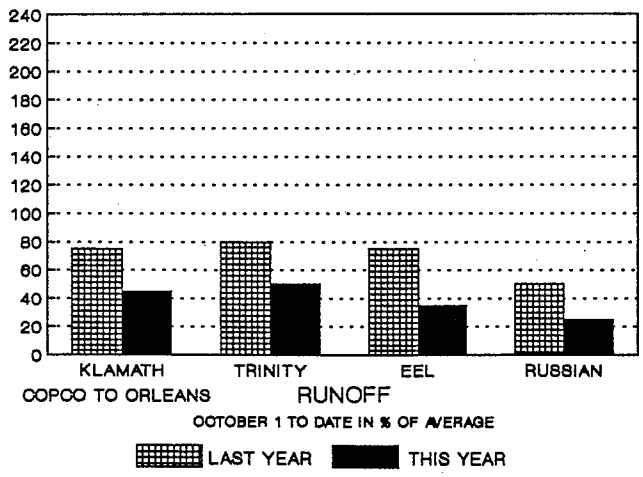
SNOWPACK - First of the month measurements made at 18 snow courses indicate an area wide snow water equivalent of 11.2 inches. This is 37 percent of the seasonal (April 1) average. Last year at this time the pack was holding 26.1 inches of water.



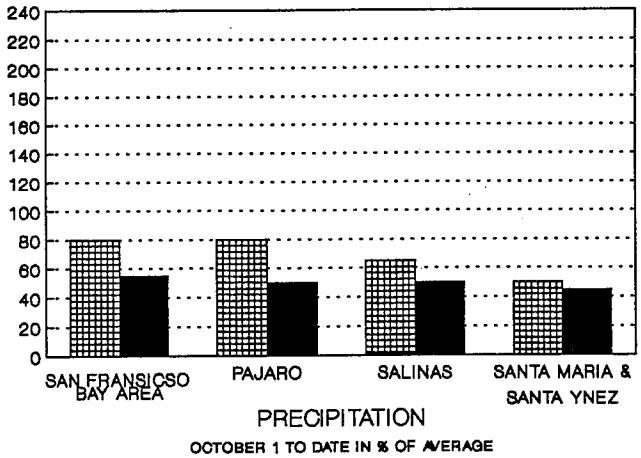
PRECIPITATION - Seasonal precipitation (October 1 through the end of last month) on this area was 64 percent of normal. Precipitation last month was about 61 percent of the monthly average. Seasonal precipitation at this time last year stood at 95 percent of normal.



RESERVOIR STORAGE - First of the month storage in 7 reservoirs was 1.8 million acre-feet which is 75 percent of average. About 58 percent of available capacity was being used. Storage in these reservoirs at this time last year was 85 percent of average.



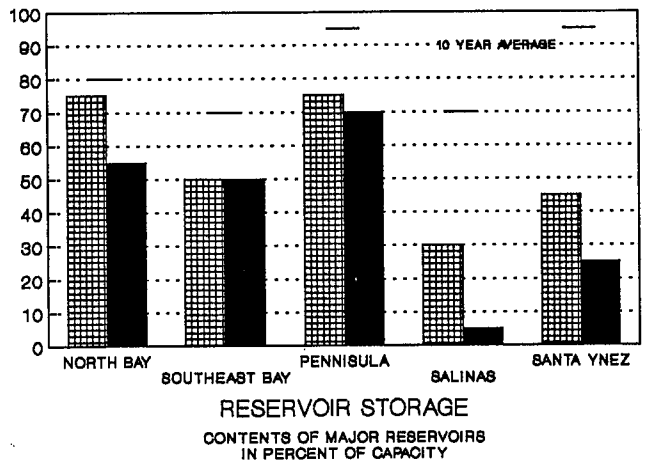
RUNOFF - Seasonal runoff of streams draining the area totaled 3.7 million acre-feet which is 38 percent of average for this period. Last year, runoff for the same period was 75 percent of average.



SAN FRANCISCO AND CENTRAL COAST AREAS

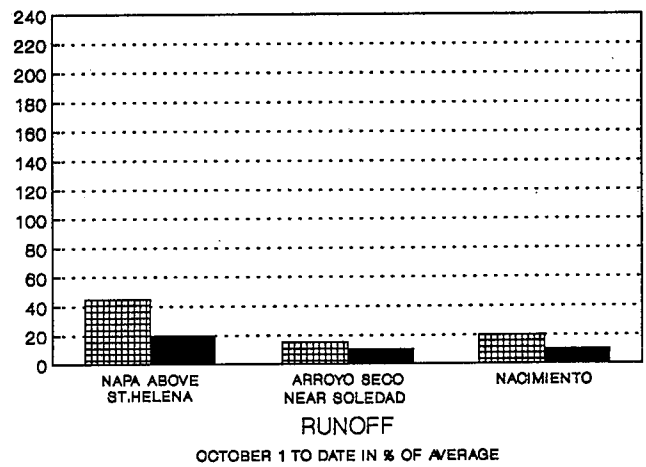
PRECIPITATION - Seasonal precipitation (October 1 through the end of last month) on the San Francisco Bay area was 53 percent of normal. Precipitation last month was 42 percent of the monthly average. Seasonal precipitation at this time last year stood at 80 percent of normal.

Seasonal precipitation on the Central Coast area averaged 48 percent of normal. Precipitation last month was 29 percent of the monthly average. Seasonal precipitation at this time last year stood at 65 percent of normal.



RESERVOIR STORAGE - First of the month storage in 18 major Bay area reservoirs was 359 thousand acre-feet which is 69 percent of average. About 52 percent of available capacity was being used. Storage in these reservoirs at this time last year was 75 percent of average.

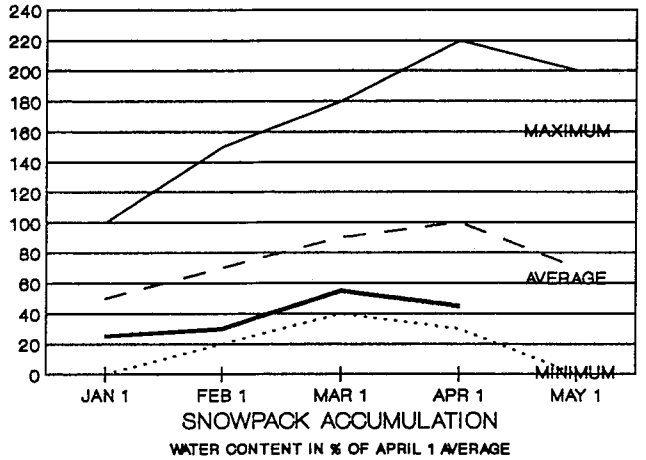
First of the month storage in 6 major Central Coast reservoirs was 127 thousand acre-feet which is 18 percent of average. About 13 percent of available capacity was being used. Storage in these reservoirs at this time last year was 45 percent of average.

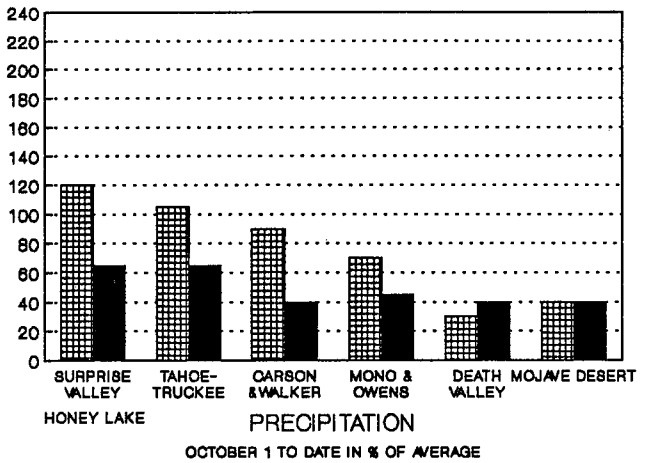


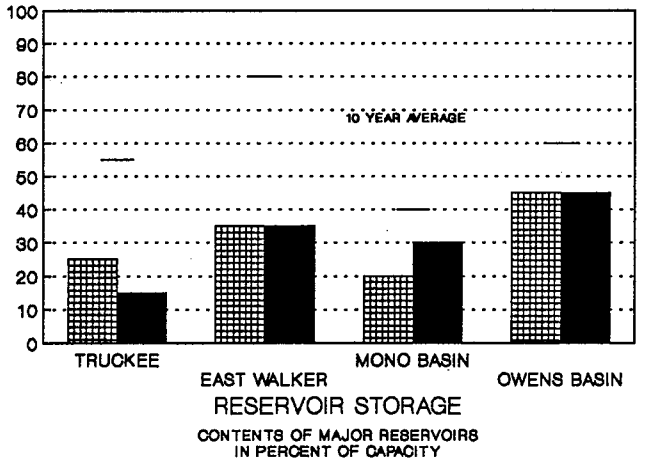
RUNOFF - Seasonal runoff of the Napa River in the San Francisco Bay area totaled 13 thousand acre-feet which is 21 percent of average for this period. Last year, runoff for this same period was 45 percent of average.

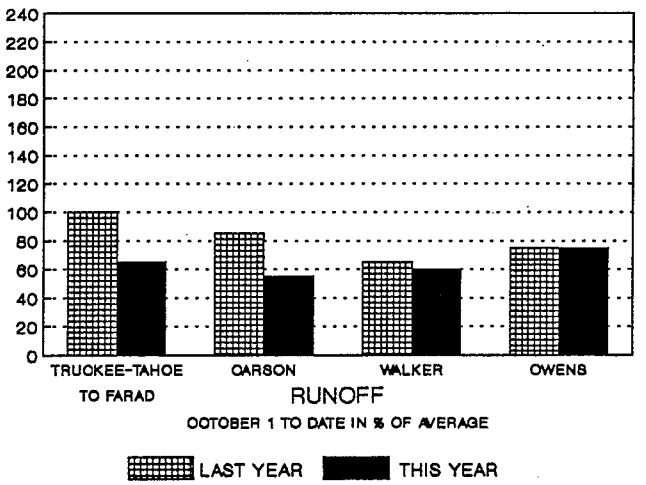
Seasonal runoff of selected Central Coast streams totaled 30 thousand acre-feet which is 10 percent of average for this period. Last year, runoff for this same period was 15 percent of average.

LAST YEAR THIS YEAR









NORTH AND SOUTH LAHONTAN AREA

SNOWPACK - First of the month measurements made at 30 North Lahontan snow courses indicate an area wide snow water equivalent of 12.5 inches which is 39 percent of the seasonal (April 1) average. Last year at this time, the pack was holding 21.0 inches of water.

At the same time, 24 South Lahontan courses indicated an area wide snow water equivalent of 11.5 inches which is 45 percent of the seasonal average. Last year at this time, the basin was holding 18.7 inches of water.

PRECIPITATION - Seasonal precipitation (October 1 through the end of last month) over the North Lahontan area averaged 51 percent of normal. Precipitation last month was 27 percent of the monthly average. Seasonal precipitation at this time last year stood at 100 percent of normal.

Seasonal precipitation over the South Lahontan area averaged 43 percent of normal. Last month's precipitation was 19 percent of the monthly average. Seasonal precipitation at this time last year stood at 55 percent of normal.

RESERVOIR STORAGE - First of the month storage in 5 North Lahontan reservoirs was 180 thousand acre-feet which is 29 percent of average. About 17 percent of available capacity was being used. Storage in these reservoirs at this time last year was 35 percent of average.

First of the month storage in 8 South Lahontan reservoirs was 209 thousand acre-feet which is 74 percent of average. About 52 percent of available capacity was being used. Storage in these reservoirs at this time last year was 70 percent of average.

RUNOFF - Seasonal runoff of streams drainng the North Lahontan area totaled 172 thousand acre-feet which is 63 percent of average for this period. Last year, runoff for this same period was 85 percent of average.

Seasonal runoff of the Owens River in the South Lahontan area totaled 59 thousand acre-feet which is 85 percent of average for this period. Last year, runoff for this same period was 85 percent of average.

FORECASTS OF APRIL-JULY UNIMPAIRED RUNOFF FOR SELECTED CALIFORNIA STREAMS

APRIL 1, 1990

DRAINAGE BASIN AND WATERSHED	April through July Unimpaired Runoff in 1,000 Acre-Feet				
	HISTORICAL			FORECASTS	
	50 Year Average(1)	Maximum of Record	Minimum of Record	April-July Forecast	Percent of Average
NORTH COAST AREA					
Trinity River at Lewiston	676	1,593	80	250	37
Scott River at Ft. Jones	200			60	30
Upper Klamath Lake(1)(2)(5)	521			240	46
LAHONTAN AREA					
Truckee River, Lake Tahoe to Farad accretion	278	713	58	100	36
Lake Tahoe Rise in feet (assuming gates closed)	1.5	3.75	0.23	0.5	33
East Carson River near Gardnerville	195	407	43	80	41
West Carson River at Woodfords	55	131	12	23	42
East Walker River near Bridgeport	68	209	7	17	25
West Walker River near Coleville	154	330	35	70	45
Owens River(1)(3)	310			147	47

(1)Forecast period of April-September

(2)Forecast by U.S. Soil Conservation Service, Portland, Or.

(3)Forecast by Dept. of Water and Power, City of Los Angeles

(4)Inside back cover for definition of unimpaired runoff.

(5)Average period of 25 years

SOUTH COAST AND COLORADO RIVER AREAS

PRECIPITATION - Seasonal precipitation (October 1 through the end of last month) on the South Coast was 47 percent of normal. Precipitation last month was 17 percent of the monthly average. Seasonal precipitation at this time last year stood at 70 percent of normal.

Seasonal precipitation on the Colorado River area was 27 percent of normal. Precipitation last month was 27 percent of the monthly average. Seasonal precipitation at this time last year was 50 percent of average.

RESERVOIR STORAGE - First of the month storage in 29 South Coast reservoirs was 1.3 million acre-feet which is 99 percent of average. About 67 percent of available capacity was being used. Storage in these reservoirs at this time last year was 103 percent of average.

First of the month combined storage in Lakes Powell, Mead, Mohave and Havasu was 41.7 million acre-feet which is 115 percent of average. About 78 percent of available capacity was being used.

RUNOFF - Seasonal runoff of selected South Coast streams totaled 9 thousand acre-feet which is 19 percent of average. Last year, runoff for the same period was 40 percent of average.

UPPER COLORADO - The April 1 snowpack in the Upper Colorado River Basin according to the U.S. Soil Conservation Service was 69 percent of average and ranges from 90 percent in the Headwaters Basin to 58 percent in the San Juan River Basin.

The April through July inflow to Lake Powell is forecast to be 3.4 million acre-feet which is 42 percent of normal.

CENTRAL VALLEY PROJECT

CVP reservoir storage rose from 5.9 to 6.4 million acre-feet during March. Total CVP storage for April 1 is 71 percent of normal. One year ago it was 7.7 MAF. Water year runoff into CVP reservoirs now range from 41 percent of normal at Folsom to 59 percent at Shasta Lake. Bureau of Reclamation April through July runoff forecasts range from 38 percent at Folsom to 57 percent at Shasta.

Unlike last March there has been no late recovery this year to permit restoration of water deliveries. Not only is storage less than a year ago, but forecasted snowmelt runoff is substantially less than last year. As of April 1 all of the previously announced water delivery deficiencies are still in effect; 25% to water rights contractors, 50% to most others.

STATE WATER PROJECT

SWP conservation storage (Oroville and San Luis) increased .30 million acre-feet during March to 3.16 million acre-feet. The low was 2.36 million acre-feet at the end of September 1989. Other SWP reservoir storages increased 32 thousand acre-feet to a total storage of 692 thousand acre-feet (97 percent full).

The Feather River Basin had heavy snow melt in March. The forecast water supply with median conditions for the remainder of the season has decreased from 59% to 46% of the historic average.

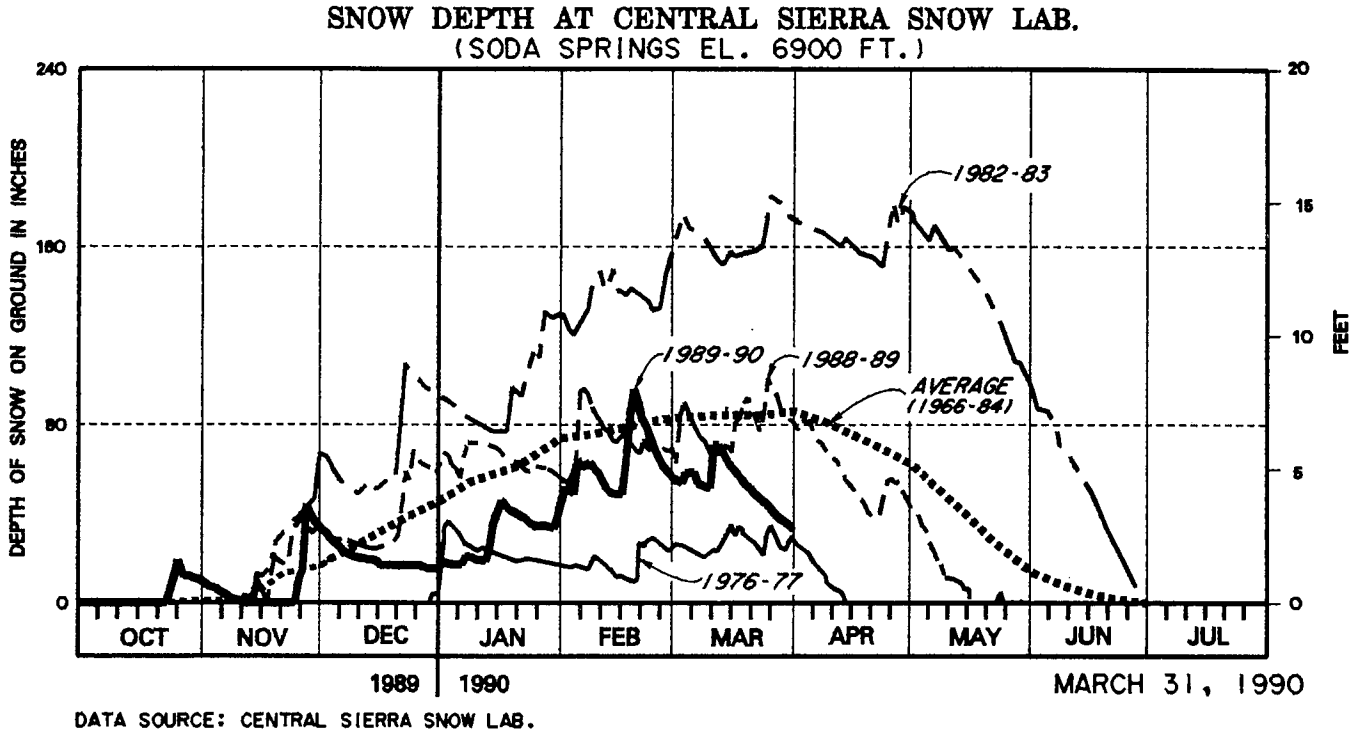
Due to continued critical water supply conditions, the SWP may not be able to support deliveries approved in December 1989. The forecast water supply at a 99% exceedence may require a reduction of up to 50% of the agricultural water deliveries. Other water supplies are being considered for purchase or exchange to supplement SWP water supplies so that reductions of 50% for agriculture may not be necessary.

MAJOR WATER DISTRIBUTION PROJECTS

RESERVOIR STORAGE

(AVERAGES BASED ON PERIOD RECORD)

RESERVOIR	CAPACITY 1,000 AF	AVERAGE STORAGE 1,000 AF	STORAGE AS OF MARCH 31 1989 1,000 AF	1990 1,000 AF	PERCENT AVERAGE
STATE WATER PROJECT					
Oroville	3,540	2,849	2,867	2,091	73
San Luis SWP	1,060	972	708	1,076	111
Lake Del Valle	77	37	34	36	97
Silverwood	73	67	62	69	103
Pyramid Lake	171	159	158	159	100
Castaic Lake	324	279	308	314	113
Perris Reservoir	132	116	117	126	109
CENTRAL VALLEY PROJECT					
Clair Engle Lake	2,450	2,026	1,665	1,431	71
Shasta Lake	4,552	3,819	3,289	2,709	71
Whiskeytown	241	213	205	206	97
Folsom	1,010	637	748	503	79
New Melones	2,420	1,727	986	770	45
Millerton Lake	521	308	297	250	81
San Luis CVP	980	827	783	774	94
COLORADO RIVER PROJECT					
Lake Mead	26,159	19,490	22,957	21,477	110
Lake Powell	25,002	14,591	21,128	17,992	123
Lake Mohave	1,810	1,639	1,650	1,608	98
Lake Havasu	619	547	564	582	106
EAST BAY MUNICIPAL UTILITY DISTRICT					
Pardee	210	178	192	192	107
Camanche	431	272	23	200	74
East Bay (4 reservoirs)	151	132	140	130	98
CITY & COUNTY OF SAN FRANCISCO					
Hetch Hetchy	360	124	145	96	77
Cherry Lake	268	108	118	126	117
Lake Eleanor	26	11	14	3	29
South Bay (4 reservoirs)	225	179	135	121	68
CITY OF LOS ANGELES(DWP)					
Crowley Lake(Long Valley)	183	128	96	96	75
Grant Lake	48	23	11	19	83
Other Aqueduct Storage(6 reser	95	72	52	57	79



********SNOW LINES**********

DROUGHT - The effects of four straight dry years are beginning to be felt throughout California. As the high water demand season approaches, suppliers are beginning to implement conservation measures. Strategies include moratoriums on new service connections, bans on lawn watering, and rationing. The use of these and other conservation measures is expected to increase as the dry season continues.

WATER DIVERTERS - The State Water Resources Control Board will be examining water uses this year for violations of water rights. If you would like more information on the State Board's water rights enforcement program, contact Glenn Mork of the Division of Water Rights at (916) 324-5681

1989 FALL REPORT - Production of this publication has been further delayed. We will have it in the mail as quickly as possible.

NORTHERN CALIFORNIA POWER AGENCY (NCPA) - This agency became a cooperator recently. Roseville based NCPA provides power to a number of California communities. Their new power project on the Stanislaus requires greater runoff information and they have sponsored a telemetered snow sensor at Highland Meadow.

DRY YEARS COMPARED - Here is a comparison of current conditions with past dry years. The figures are for statewide conditions on April 1 and they are in percent of average.

	1990	1989	1988	1977	1976
Precipitation	60	85	75	35	60
Snow Water	40	75	30	25	40
Storage	75	85	85	55	90
Runoff to date	40	75	50	20	50
A-J Forecast	40	75	35	25	40
W.Y. Forecast	40	75	45	25	45

SNOWPACK—Snow data is a major index of spring and summer runoff from Sierra Nevada watersheds. April 1 data historically reflects the magnitude of the snowpack at or near the maximum seasonal accumulation. Averages are based on April 1 date for the period 1936-1985 (50 years, except for data sites estabilshed after 1936).

PRECIPITATION—Averages are based on the period 1931-1980 (50 years)

RUNOFF AND FORECASTS—Runoff data and runoff forecasts are shown as unimpaired values. Unimpaired runoff represents the natural water production of a river basin, unaltered by upstream diversions, storage, or by export or import of water to or from other watersheds. Forecast of runoff assume median conditions subsequent to the date of forecast.

Runoff probability ranges are statistically derived from historical data. The 80 percent probability range is comprised of the 90 percent exceedence level value and the 10 percent exceedence level value. This means that actual runoff should fall within the state limits eight times out of ten.

Runoff averages for most streams are based on the 50 year period (1936-1985). For more details, contact California Cooperative Snow Surveys, P.O. Box 943836, Sacramento, CA 94236-0001, (916) 445-2196.

On Front Cover

The warmth of spring starts spring runoff

Photo by DWR

State of California—Resources Agency
Department of Water Resources
P.O. Box 942836
Sacramento, CA 94236-0001

FIRST CLASS